

STATE OF NEW YORK  
PUBLIC SERVICE COMMISSION

CASE 13-E-0030 - Proceeding on Motion of the Commission as to the Rates,  
Charges, Rules and Regulations of Consolidated Edison  
Company of New York, Inc. for Electric Service

Direct Testimony of  
Luke Tonachel  
On Behalf of the  
Natural Resources Defense Council

May 31, 2013

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Exhibit\_LT-1

*Resume of Luke Tonachel*

1    **I.    Identification and Qualifications**

2    **Q.    Please state your name and business address.**

3    A.    Luke Tonachel, 40 West 20<sup>th</sup> Street, New York, NY 10011.

4    **Q:    On whose behalf are you testifying?**

5    A:    I am testifying on behalf of the Natural Resources Defense Council  
6        ("NRDC").

7    **Q.    Mr. Tonachel, by whom are you employed and in what capacity?**

8    A.    I am a Senior Policy Analyst at NRDC, which is an international non-profit  
9        environmental organization with more than 1.4 million members and online  
10       activists. Since 1970 our lawyers, scientists and other environmental  
11       specialists have been working to protect the world's natural resources and  
12       improve the quality of the human environment. I am also a customer of  
13       Consolidated Edison residing in Westchester County.

14   **Q.    Summarize your qualifications.**

15   A.    I received a bachelor's degree in mechanical engineering from the University  
16       of Rochester and a master's in public policy from the University of California  
17       at Berkeley. I also served as a nuclear engineering officer in charge of  
18       shipboard electrical generation and distribution in the U.S. Navy. Since 2004,  
19       I have worked at NRDC on transportation vehicles and fuels, evaluating their

1 environmental impacts and advocating for effective clean vehicles and fuels  
2 policies.

3 In my role as Director of NRDC's Vehicles and Fuels project, I lead  
4 research and advocacy for federal car and heavy truck fuel efficiency and  
5 pollution standards and regional programs to develop markets for clean  
6 alternative fuels, such as the Northeast / Mid-Atlantic Clean Fuels Standard.  
7 Vehicle electrification is an important strategy under the Clean Fuels  
8 Standard for meeting the region's goals of reducing dependence on imported  
9 oil, reducing pollution and spurring economic growth. I have spent  
10 considerable time researching the impact and pollution reduction potential of  
11 electric vehicles and I was a principal investigator for a joint report between  
12 NRDC and the Electric Power Research Institute (EPRI): *Environmental*  
13 *Assessment of Plug-In Hybrid Electric Vehicles* (Volumes 1 and 2).  
14 Exhibit\_LT-1 provides other details of my professional background.

## 15 II. Introduction

16 **Q: What issues will you address in your testimony?**

17 A: I will address Consolidated Edison Company of New York, Inc.'s ("Con  
18 Edison" or the "Company") proposed Service Classification No. 1 and No. 2  
19 rates and how they affect existing and potential owners of plug-in electric  
20 vehicles ("PEVs").

1    **III. Electric Vehicle Charging Rates**

2    **Q: Will the proposed voluntary time-of-use rates be attractive to customers**  
3       **with plug-in electric vehicles and succeed in shifting the majority of**  
4       **vehicle load in Con Edison territory to off-peak hours?**

5    A: Generally, no. The proposed Service Classification No. 1 - Rate III -  
6       Residential and Religious - Voluntary Time-of-Day rate ("SC1 Rate III") will  
7       typically not provide PEV drivers with net bill savings relative to the  
8       standard Service Classification No. 1 – Rate I – Residential and Religious  
9       rate ("SC1 Rate I"). While PEV charging during the off-peak hours on the  
10      proposed SC1 Rate III provides savings, NRDC estimates the typical PEV  
11      customer will still realize an overall bill increase relative to SC1 Rate I  
12      because non-PEV consumption will be subject to higher prices during other  
13      hours. A customer with a single PEV (charged exclusively during the  
14      proposed off-peak period of 1:00AM to 7:00AM) may need to shift more  
15      than a quarter of non-PEV load to the off-peak period to realize net savings  
16      relative to SC1 Rate I. It will be difficult for customers to shift such a large  
17      portion of non-PEV load to hours when they are generally asleep. Even if a  
18      customer were to shift more than a quarter of non-PEV load to the period  
19      between 1:00AM and 7:00AM, he or she would need to accomplish 100% of  
20      PEV charging during that six hour window to realize net savings. As  
21      explained in my response to the next question, a six hour window may not be

1 sufficient to accommodate PEV charging at power levels that minimize  
2 adverse impacts to the electrical grid and do not require the use of potentially  
3 expensive charging equipment. In sum, plug-in vehicle customers are  
4 unlikely to adopt the proposed SC1 Rate III because they would generally be  
5 better served by remaining on the standard SC1 Rate I.

6 Customers could theoretically continue to take service for non-PEV  
7 load on the standard SC1 Rate I and take service for PEV load using a  
8 separate meter under the proposed Service Classification No. 2 - Rate II –  
9 General – Small - Time-of-Day rate (“SC2 Rate II”). This would allow PEV  
10 customers to take advantage of SC2 Rate II’s longer off-peak period and  
11 lower supply and delivery charges during the off-peak period, while avoiding  
12 the high on-peak prices for non-PEV load. However, SC2 Rate II’s very  
13 high monthly customer charge (\$32.64) and the expense associated with the  
14 installation of a second meter under the standard configuration render this  
15 option unattractive to the vast majority of PEV customers. According to  
16 NRDC’s calculations, a typical Nissan Leaf customer would have to wait  
17 over 30 years for the lower cost of charging under the SC2 Rate II compared  
18 to the SC1 Rate I to offset the meter installation charges. By eliminating the  
19 monthly customer charge and using a lower-cost metering solution, the  
20 payback could be reduced to less than three years.

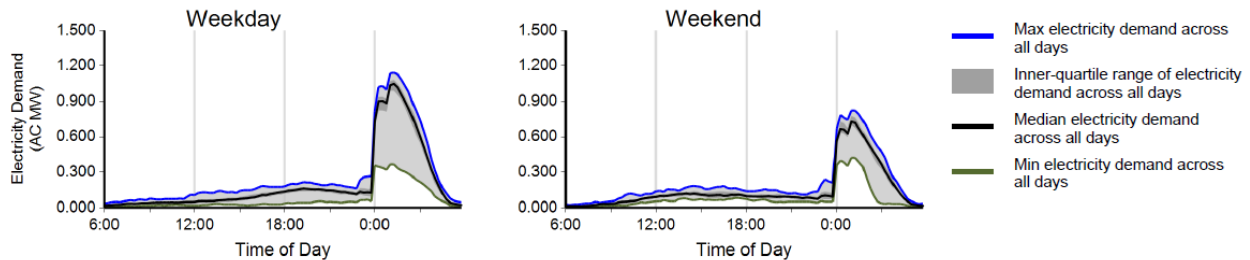
21 In sum, because these proposed time-of-use rate options are unattractive  
22 for customers with plug-in electric vehicles, consumers are likely to remain

1 on the standard SC1 Rate I. As a result, they will not be able to take  
2 advantage of the lower marginal cost of electricity during off-peak hours to  
3 maximize savings relative to gasoline and they will have no economic  
4 incentive to shift charging to off-peak hours. Most customers taking service  
5 on the standard SC1 Rate I will likely begin charging as soon as they return  
6 home from work, during hours that often coincide with system-wide peak  
7 demand.

8 Shifting charging load to off-peak hours can be accomplished with a  
9 combination of price signals, customer education and outreach, and the use  
10 of relatively simple scheduling functionality included in today's plug-in  
11 vehicles. This combination has proved effective in San Diego Gas & Electric  
12 territory. The utility's PEV tariffs have both "off-peak" and "super-off-peak"  
13 time periods, meant to encourage charging during the five "super-off-peak"  
14 hours when grid assets are the most under-utilized while also accommodating  
15 lower-power "Level 1" charging (which generally requires more than five  
16 hours to completely recharge a fully depleted battery) during off-peak hours.  
17 Figure III-I reflects the charging pattern of a customer group predominately  
18 composed of Nissan Leaf drivers in the San Diego region who received free  
19 "Level 2" charging equipment that allows them to generally meet their  
20 charging needs during the five hour super-off-peak period on San Diego Gas  
21 & Electric's PEV tariffs. Combined with extensive education and outreach,  
22 San Diego Gas & Electric has pushed almost all vehicle load in the service

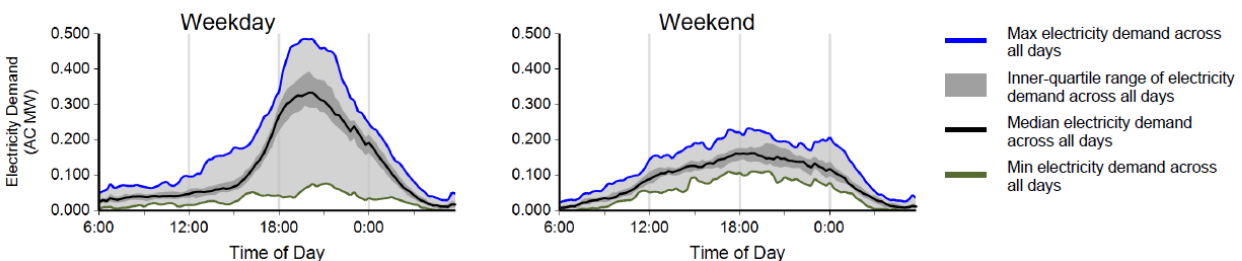
territory to off-peak hours; as shown in Figure III-I, customers appear to be programming their cars to begin charging at midnight.

**Figure III-I: Residential PEV Load in San Diego, CA (1,187 Vehicles)<sup>1</sup>**



However, in service territories that lack this combination of attractive time-of-use rates and active customer education and outreach, charging generally occurs during on-peak evening hours. For example, customers in Nashville, Tennessee, appear to be simply charging upon returning home in the evening, often during hours that coincide with peak demand.

**Figure III-II: Residential PEV Load in Nashville Metro Area (407 Vehicles)<sup>2</sup>**



Without an attractive time-of-use rate option and active customer education and outreach, PEV charging in New York is likely to follow the pattern exhibited in Nashville rather than San Diego.

<sup>1</sup> See Ecotality, [EV Project Quarterly Report, Fourth Quarter](#), 2012.

<sup>2</sup> *Ibid.*



1           Rate design is critical to meet the goals articulated in Governor Cuomo's  
2           2013 state of the state address, which explicitly referenced the importance of  
3           "providing utility time-of-use rates which are practical and beneficial to PEV  
4           owners."<sup>3</sup> To achieve mass-market success, PEVs must be cost-effective,  
5           absent public subsidy. Given that purchase price parity with conventional  
6           vehicles will be difficult to achieve in the short-term, the economics of  
7           vehicle electrification depend upon maximizing savings relative to gasoline.  
8           The PSC and Con Edison should develop rate options that provide customers  
9           with an opportunity to realize those savings, that are "practical" and  
10          "beneficial," and that will succeed in encouraging customers to charge during  
11          off-peak hours.

12          Specifically, the off-peak period on SC1 Rate III should be at least ten  
13          hours (as described further in my response to the subsequent question) and  
14          the customer charge of SC2 Rate II should be reduced by taking advantage of  
15          lower cost metering equipment and installation configurations.

16      **Q: Will the proposed voluntary time-of-use rate accommodate charging that**  
17      **minimizes adverse impacts to the electrical grid and lowers consumer**  
18      **costs?**

19      A: Not necessarily. The off-peak period of the proposed SC1 Rate III (1:00AM-  
20      7:00AM) is less than half as long as the off-peak period on Con Edison's

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<sup>3</sup> Governor Andrew M. Cuomo, *NY Rising, 2013 State of the State*, p. 35.

1 existing Service Classification No. 1 voluntary time-of-use rate (“SC1 Rate  
2 II”), which has an off-peak period that extends from 10:00PM until 10:00AM  
3 on weekdays and includes all weekend hours. The off-peak period on the  
4 proposed SC1 Rate III should be increased to at least ten hours to allow for  
5 charging at lower power levels. This will minimize adverse impacts to the  
6 distribution system and allow drivers of plug-in hybrid vehicles to avoid the  
7 purchase of potentially expensive charging equipment while still maximizing  
8 savings relative to gasoline.

9         The six hour off-peak period of the proposed SC1 Rate III appears to be  
10 designed to accommodate charging on 240 volt “Level 2” equipment, which  
11 is generally preferred by drivers of pure battery electric vehicles such as the  
12 Nissan Leaf and Tesla Model S. However, the vast majority of drivers of  
13 plug-in hybrid vehicles, such as the Chevrolet Volt and Ford C-Max Energi,  
14 meet their daily charging needs with “Level 1” equipment, provided with the  
15 vehicle at no additional cost, on standard 120 volt outlets. This provides  
16 consumers with a charging solution that does not require potentially  
17 expensive panel upgrades or charging equipment. According to General  
18 Motors, fully recharging a Volt, which has the largest battery of any widely  
19 available plug-in hybrid, can be accomplished overnight in approximately ten  
20 hours using Level 1 equipment (at the 12 amp setting).<sup>4</sup> The Commission

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<sup>4</sup> <http://www.chevrolet.com/volt-electric-car.html>

1 should encourage lower-power charging that minimizes adverse distribution  
2 system impacts.

3 It should be noted that within the “Level 2” category, there are  
4 significant differences in power requirements. The first wave of pure battery  
5 electrics were only capable of charging at 3.3 kW; however, many vehicle  
6 models available today are capable of charging at 6.6 kW or significantly  
7 higher and automakers are increasingly pointing to faster charging as a  
8 selling point. The distribution system impacts of integrating widespread  
9 high-powered Level 2 charging are likely to be much greater than those  
10 associated with integrating lower-power Level 2 (3.3kW) and Level 1  
11 charging. The Commission should ensure PEV drivers have rates that  
12 encourage and allow for charging that can be integrated without significant  
13 expense, both to the individual customer and the body of utility customers.

14 **Q: Is utility notification necessary to ensure adoption of rates designed for**  
15 **plug-in electric vehicles and to facilitate intelligent service planning?**

16 A: Yes. Con Edison intends to use its website, bill inserts, and an online  
17 calculator to educate PEV drivers as to the availability of the rates that are  
18 designed for plug-in vehicles.<sup>5</sup> Such efforts are critical; rate design  
19 optimization is a meaningless exercise if only a handful of customers choose

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<sup>5</sup> Customer Operations Panel testimony, p. 73-4, available at  
<http://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId=%7b8AFA5547-E7D7-496E-91CE-5DB2BCB10894%7d>.

1 to take service on the voluntary tariff. Con Edison states its intention to  
2 target its outreach efforts at PEV drivers that self-identify as such.<sup>6</sup>  
3 Unfortunately, customers may not self-identify, especially if they are using  
4 existing household circuits for charging. Con Edison should pursue other  
5 means to secure notification, such as databases currently maintained by  
6 automakers, as well as vehicle registration data. If the utility does not know  
7 which of its customers have PEVs, it will be impossible for the utility to  
8 conduct targeted education necessary to ensure widespread adoption of time-  
9 of-use rates that maximize savings relative to gasoline and minimize adverse  
10 impacts to the electrical grid. Likewise, if Con Edison lacks address-level  
11 information, it will not be able to conduct adequate service planning and  
12 strategic distribution system upgrades.

13 Con Edison should pursue a comprehensive approach to ensure  
14 adequate notification and should proactively reach out to customers with  
15 PEVs to inform them of savings available from a switch to effective time-of-  
16 use rates. Rather than solely relying on customers to find and use the  
17 proposed online bill calculator, Con Edison should send customers with  
18 PEVs individual estimates, based on actual consumption data, of savings that  
19 would be available from a switch to time-of-use rates.

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<sup>6</sup> Customer Operations Panel testimony, p. 73.

1           Con Edison should also engage in more general education and outreach  
2           as to the benefits of using electricity as a transportation fuel. The goal should  
3           not simply be to assist those who have already purchased PEVs, but to  
4           encourage those considering purchasing PEVs, to inform them of availability  
5           of rates that maximize savings relative to gasoline and to educate them on the  
6           importance of charging during off-peak hours. Such efforts will be critical to  
7           meet the goals articulated by Governor Cuomo.

8   **Q: Does this conclude your testimony?**

9   A: Yes.

## EXHIBIT LT\_1: Resume of Luke Tonachel

# Luke Tonachel

40 West 20<sup>th</sup> Street  
New York, NY 10011

(212) 727-4607  
ltonachel@nrdc.org

### **EDUCATION**

Master in Public Policy, May 2004, Goldman School of Public Policy, University of California, Berkeley  
US Navy Surface Warfare Officers School, Jul 1992, San Diego, CA  
US Navy Nuclear Power School and Prototype, Jan 1992, Orlando, FL and Ballston Spa, NY  
BS with Distinction in Mechanical Engineering, May 1990, University of Rochester, NY

### **EXPERIENCE**

#### **Environmental Policy Analysis and Advocacy**

*Director, Vehicles and Fuels, December 2012 – Present, and Senior Analyst, May 2008 – Present, Natural Resources Defense Council*

- Manage Vehicles and Fuels team and budget
- Advocate clean vehicle and fuel policies with U.S. Congressional offices and federal and state regulatory agencies through oral negotiations and written comments
  - Focus on light and heavy-duty vehicle efficiency and pollution standards and policies to support the deployment of electric vehicles and low-carbon fuels that cut oil dependence
- Lead transportation-sector analysis for economy-wide climate policies
- Engage industry and environmental stakeholders to push forward sound environmental policy
- Communicate policy recommendations through presentations in government and industry forums and on-line blogging

*Vehicles Analyst, Natural Resources Defense Council, July 2004 – April 2008*

- Advocated California clean vehicle and fuel policies through public testimony and regulatory stakeholder meetings
- Crafted bill language, create supporting materials and lobby CA legislative offices for bill passage
- Performed and documented detailed environmental assessments of state and federal vehicle and fuel policies through modeling vehicle technology, fleet turnover and fuel life-cycle analysis
- Managed external contracts and interns for technical policy analysis

*Policy Analyst Intern, Natural Resources Defense Council, Sep 2003 – May 2004*

- Recommended mechanisms that create consumer and commercial market demand for fuel-efficient tires

*Policy Analyst Intern, The Ocean Conservancy, Jun 2003 – Sep 2003*

- Recommended CA state regulatory board management plan for discharges to sensitive marine habitats

## **Management in Business**

- *Director, Product Management, Genesys Telecommunications Laboratories, Inc., Jul 2001 – Jun 2002*
- Directed 35-manager team in planning and delivery of next major product release
- Initiated and facilitated executive meetings on strategic market, product and organizational directions
- Analyzed business partnerships for internal technology adoption opportunities
- Streamlined existing and implemented new policies and procedures for efficient software evolution

### *Senior Product Manager and Product Line Manager, Genesys, Sep 1999 – Jun 2001*

- Managed \$50M sophisticated call routing product portfolio
- Distinguished as key presenter to prospective customers in worldwide conferences
- Negotiated open system access contracts with domestic and international telephone carriers

### *Education Services and Sales Training Manager, Genesys, Sep 1997 – Aug 1999*

- Developed worldwide curriculum for two-week technical and business user courses
- Created live product demonstrations and custom business applications

### *Staff Director, Network and Technology Planning, NYNEX, Inc., May 1996 – Aug 1997*

- Planned technical rollout of 15 high-revenue residential and small business telephone services
- Led public policy evaluations for sensitive privacy issues including the use of caller identification

## **Leadership in Public Service**

### *Nuclear Reactor Plant Operations and Surface Warfare Officer, LT, US Navy, Aug 1992 – May 1995*

- Supervised three divisions, consisting of 3 officers and 100 technicians, in all aspects of nuclear and non-nuclear electrical distribution and electronic control systems
- Directed testing and maintenance of sensitive reactor protection safeguards; hand-selected to direct power plant operations during post-overhaul, initial criticality and sea trials testing
- Directed underway ship maneuvering operations at the highest levels of battle readiness
- Awarded Navy Achievement Medal for outstanding performance; ranked 1 of 21 junior officers

## **PUBLICATIONS**

- Lead NRDC author for joint clean vehicle supply chain study done jointly with the United Auto Workers and National Wildlife Federation titled “Supplying Ingenuity: U.S. Suppliers of Clean, Fuel-Efficient Vehicle Technologies”, August 2011, available with an interactive map at <http://www.nrdc.org/transportation/autosuppliers/>. The study highlights suppliers of electric-drive and alternative fuel vehicle component manufacturers.
- Contributor to Sandalow, David B. (Editor), *Plug-in Electric Vehicles: What Role for Washington?*, Brookings Institution, 2009.
- Principal Investigator for joint report between NRDC and the Electric Power Research Institute (EPRI): *Environmental Assessment of Plug-In Hybrid Electric Vehicles* (Volumes 1 and 2), available at [http://my.epri.com/portal/server.pt?space=CommunityPage&cached=true&parentname=ObjMgr&parentid=2&control=SetCommunity&CommunityID=404&RaiseDocID=00000000001015325&RaiseDocType=Abstract\\_id](http://my.epri.com/portal/server.pt?space=CommunityPage&cached=true&parentname=ObjMgr&parentid=2&control=SetCommunity&CommunityID=404&RaiseDocID=00000000001015325&RaiseDocType=Abstract_id).